DATA MODUL
DISPLAYS AND EMBEDDED SOLUTIONS

User Manual

EMX-CDT

IntelÈ AtomÊ
Cedar Trail Mini ITX Motherboard
With IntelÈ D2550 Processor +
NM10 Chipset

1st Ed - 20 June 2012

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1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- Rear I/O bracket X 1
- Quick Installation Guide X 1
- Driver/Utility CD X 1
- Serial ATA Signal Cable X 1
- COM Cable X 1
- Motherboard X 1

1.3 Document Amendment History

Revision	Date	By	Comment
1st	June 2012	Avalue	Initial Release

1.4 Manual Objectives

This manual describes in details Avalue Technology EMX-CDT Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up EMX-CDT series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

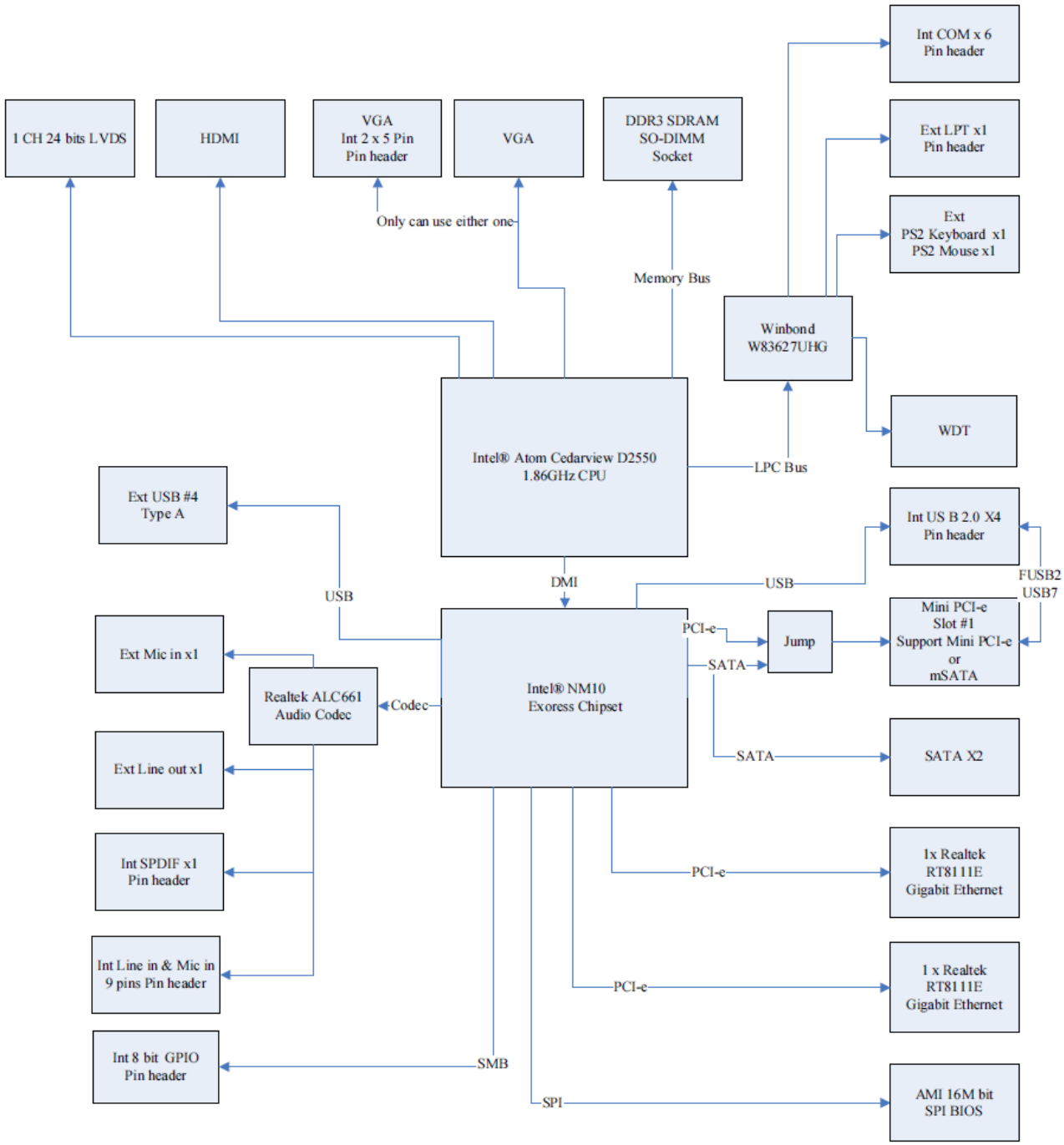
1.5 Specifications

Title	EMX-CDT Intel® Atom™ Cedar Trail Mini ITX Motherboard With Intel® D2550 Processor + NM10 Chipset
Features	Mini-ITX
	Onboard Intel® Atom™ processor Cedar Trail
	IOH: NM10
	One 204-pin DDR3 1066/1033MHZ SO-DIMM socket, supports up to 4GB Max
	1x VGA 1x HDMI 1x 18/24 bit single-channel LVDS
	2x Realtek RT8111E PCIe Gigabit Ethernet
	1x Mini PCI-e socket *Mini PCI-e and M-SATA SSD switch through Jumper 1x PCIE x1
Specifications	
System	
CPU	Onboard Intel® Atom™ Processor D2550 Cedar Trail (1M Cache, 1.86 GHz)
BIOS	AMI 16MBit SPI BIOS
System Chipset	Intel® NM10
I/O Chip	Winbond W83627UHG
System Memory	One 204-pin DDR3 1066/1333MHZ SO-DIMM socket, supports up to 4GB Max
SSD	NA
Watchdog Timer	Reset : 1 to 255 sec/min per step
H/W Status Monitor	Monitoring temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
Expansion	1x Mini PCI-e socket *Mini PCI-e and m-SATA SSD switch through Jumper 1x PCIE x1
I/O	
MIO	Serial port x 6 internal RS-232 ports with 5V/12V power 2x SATAII Connector(3Gb/s) 1 x 10 pin-headers for VGA output port (The I/O VGA DB15 connector &

	1 x 10 pin-headers can't use in the same time)
USB	8 x USB 2.0/1.1 4 x internal USB port (pin-header) ,4x rear I/O connectors
Parallel Port	1 x LPT port rear I/O connectors
PS2 KB/MS	1 x PS2 keyboard , 1 x PS2 Mouse
DIO	supports 8-bit General Purpose I/O for DI and DO
Display	
Chipset	Integrated Intel® Graphics Media Accelerator 3650 (Gfx freq @ 640Mhz) support DX9
Resolution	VGA /HDMI Display: 1920 x 1200 Internal LVDS 1440 x 900
Dual Display	Yes , LVDS+VGA, VGA+HDMI, HDMI+LVDS
Audio	
Audio Codec	Realtek ALC661 HD Audio Decoding controller
Audio Interface	Mic-in ,Line out Support On-board S/PDIF input/output
Ethernet	
LAN Chip	2 x Realtek RT8111E PCIe Gigabit Ethernet
Ethernet Interface	10 /100 /1000 Base-Tx Gigabit Ethernet
Mechanical & Environmental	
Power Requirement	+12V/+5V/5Vsb/+3.3V
Power Type	ATX
Operating Temp.	0 ~ 60°C (32 ~ 140°F)
Storge Temp	-40 ~ 75°C (-40 ~ 167°F)
Operating Humidity	0 ~ 90% Relative Humidity, Non-condensing
Size (L x W)	6.69" x 6.6" (170mm x 170mm)
Weight	1.058lbs (0.48kg)

1.6 Architecture Overview—Block Diagram

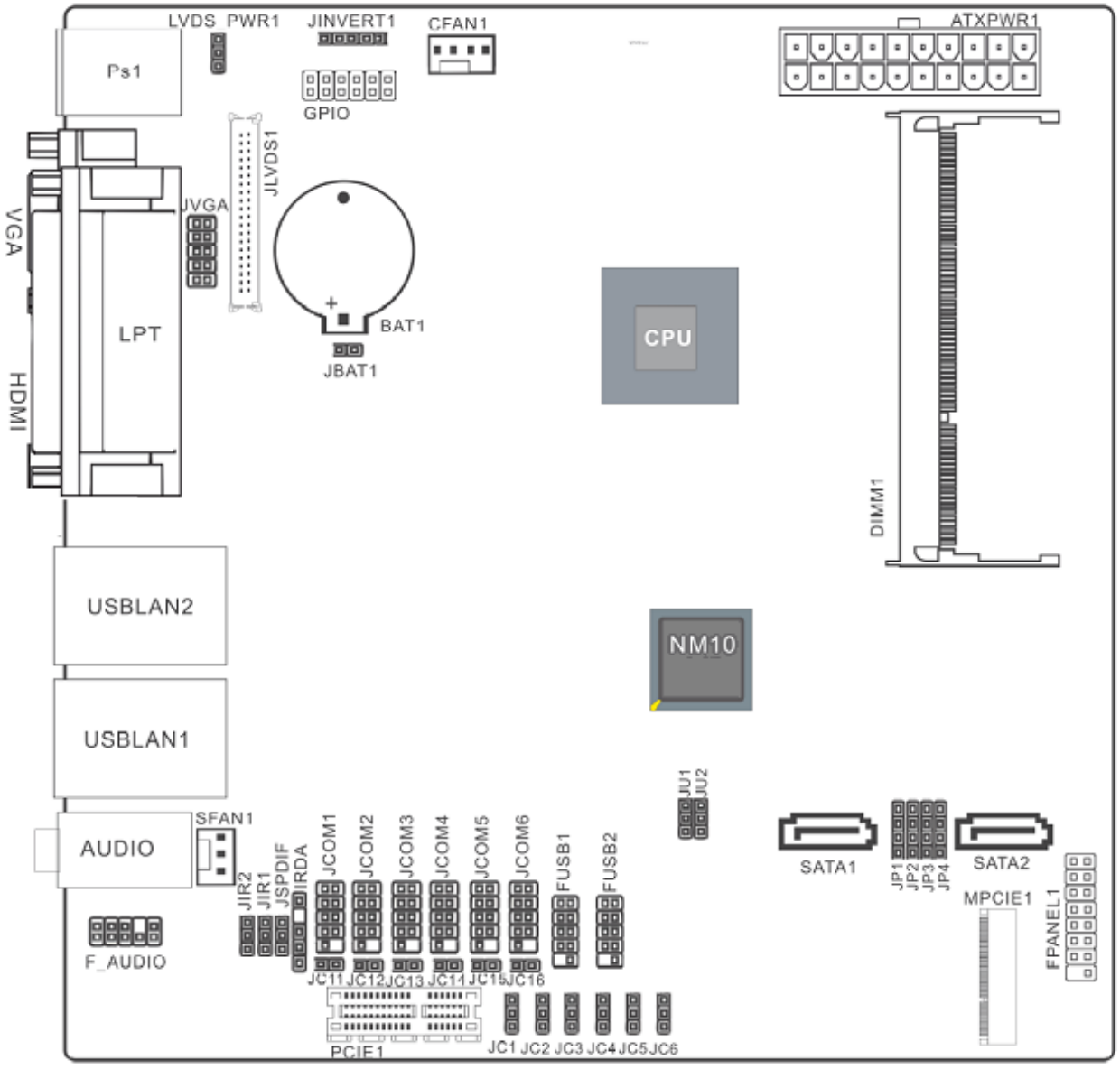
The following block diagram shows the architecture and main components of EMX-CDT.



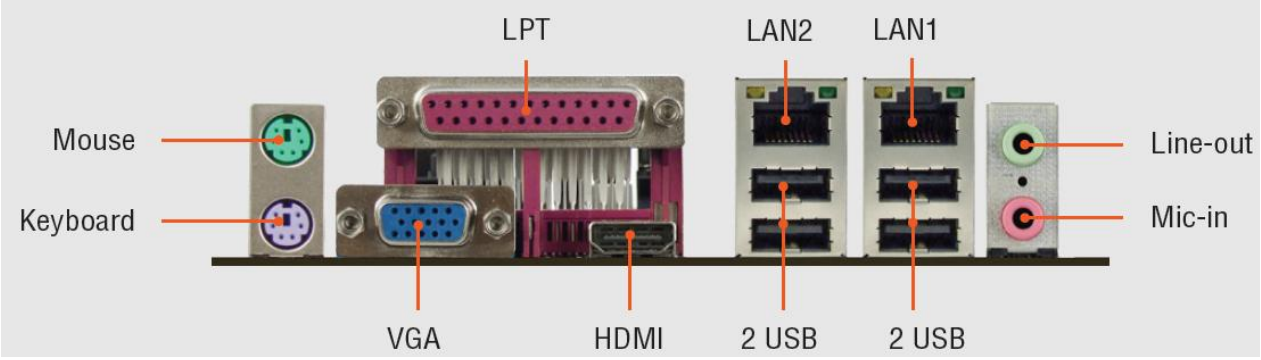
2. Hardware Configuration

2.1 Product Overview

2.1.1 Main board layout



2.1.2 Connecting Rear Panel I/O Devices



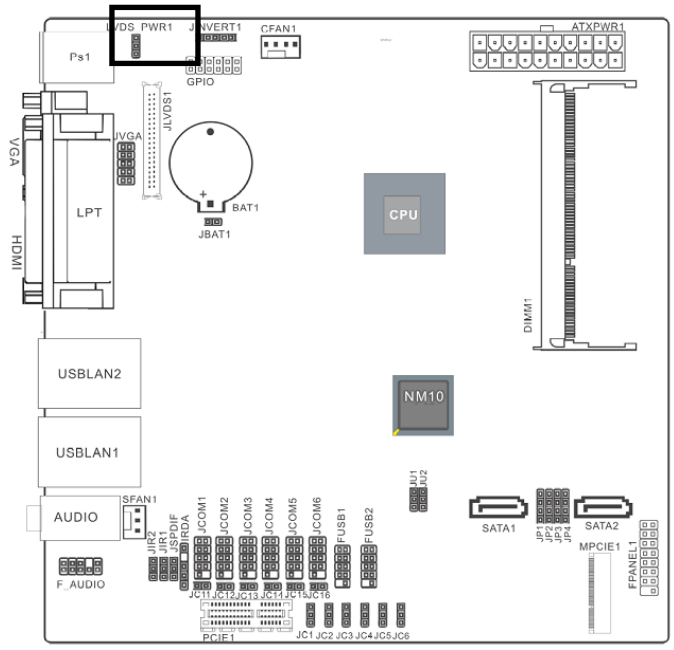
2.2 Installation Procedure

This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the DIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power supply to the board via the ATXPWR.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "Save & Exit \ Restore Defaults" feature.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

2.3 Setting Jumpers & Connectors

2.3.1 LVDS _PWR1

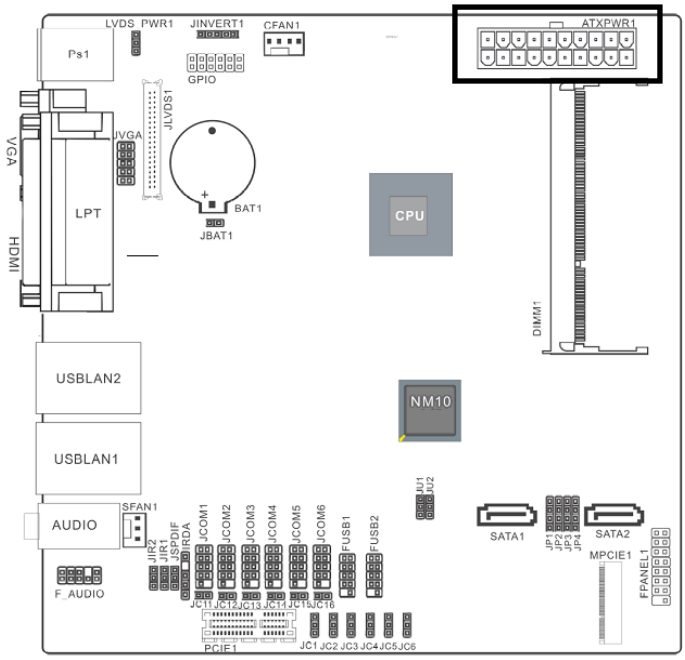


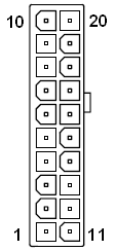
Pin No.	Definition
1-2	5V
2-3	3.3V

1-2, Set JLVDS1 Pin1,2,5,6 VDDSAFE as 5V

2-3, Set JLVDS1 Pin1,2,5,6 VDDSAFE as 3.3V

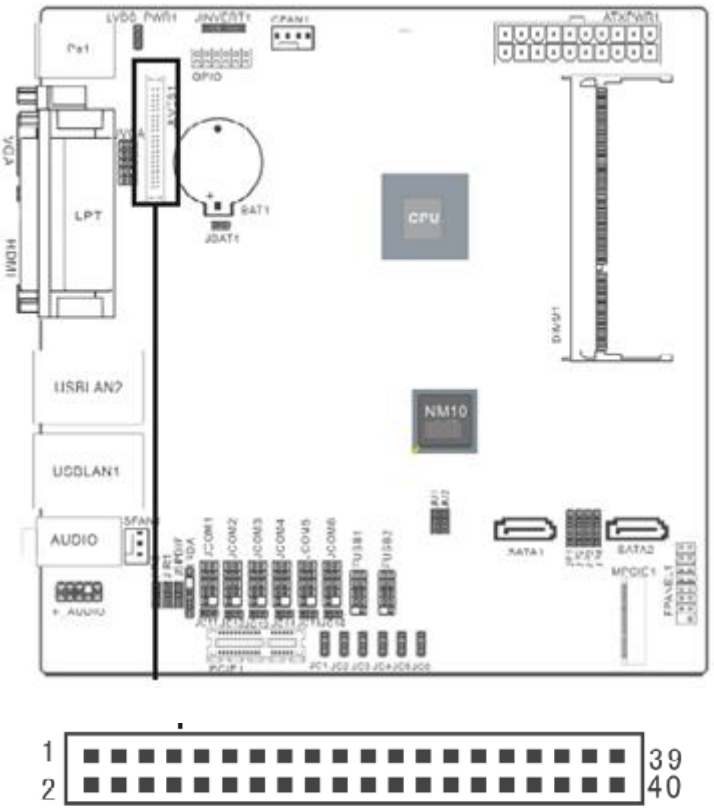
2.3.2 20PIN ATXPWR





Pin No.	Definition	Pin No.	Definition
1	+3.3V	2	+3.3V
3	GND	4	+5V
5	GND	6	+5V
7	GND	8	PWR OK
9	+5VSB	10	+12V
11	+3.3V	12	-12V
13	GND	14	PS-ON
15	GND	16	GND
17	GND	18	-5V
19	+5V	20	+5V

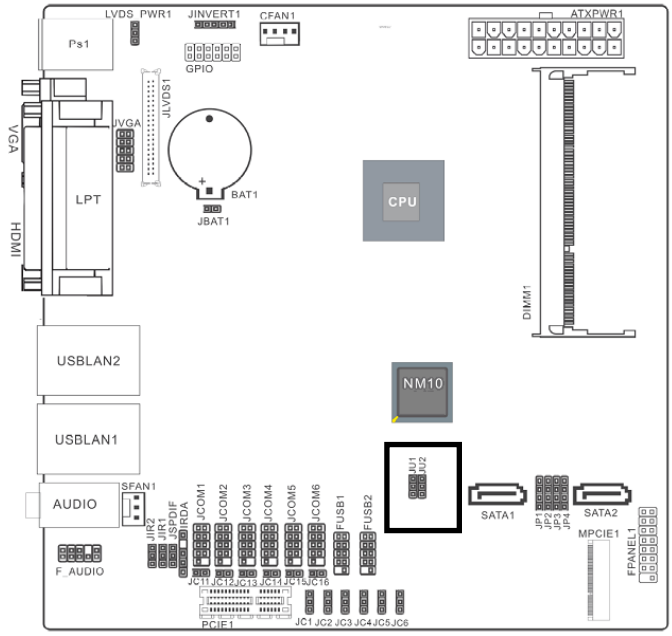
2.3.3 JLVDS1



Pin No.	Definition	Pin No.	Definition
1	VDDSAFE	2	VDDSAFE
3	GND	4	GND
5	VDDSAFE	6	VDDSAFE
7	LVDS0_N0	8	NC
9	LVDS0_P0	10	NC
11	GND	12	GND
13	LVDS0_N1	14	NC
15	LVDS0_P1	16	NC
17	GND	18	GND
19	LVDS0_N2	20	NC

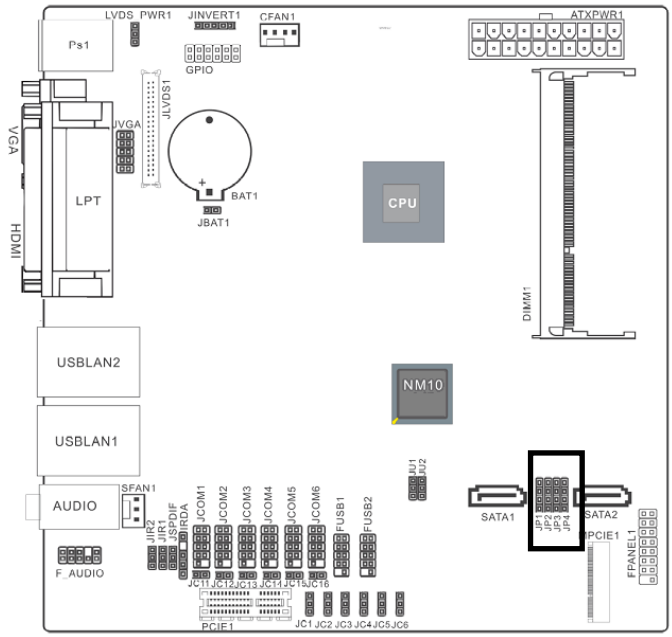
Pin No.	Definition	Pin No.	Definition
21	LVDS0_P2	22	NC
23	GND	24	GND
25	LVDS0_CLKN	26	NC
27	LVDS0_CLKP	28	NC
29	GND	30	GND
31	LVDS_DDCPCLK	32	LVDS_DDCPDATA
33	GND	34	GND
35	LVDS0_N3	36	NC
37	LVDS0_P3	38	NC
39	NC	40	LVDS_VCON

2.3.4 JU1/ JU2



Pin No.	Definition	FUSB2 (USB7)	Mini PCI-e WiFi Card (USB interface)	Mini PCI-e Card
1-2	FUSB2	Enabled	Don't use USB interface Mini PCI-e card in the Mini PCI-e slot	Enabled
2-3	MINIPCIE	Disabled	Enabled	Enabled

2.3.5 JP1-JP4



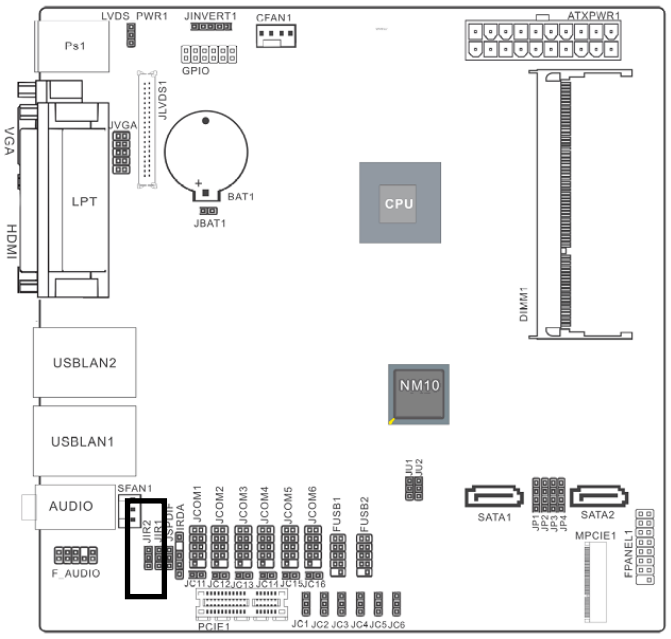
Pin No.	Definition
1-2	MINIPCIE
2-3	M-SATA
3-4	SATA2

When you want to use Wifi on MINIPCIE1 slot, please set up JP1-JP4 as 1-2.

When you want to use M-SATA on MINIPCIE1 slot, please set up JP1-JP4 as 2-3.

When you use SATA2 connect, please set up JP1-JP4 as 3-4.

2.3.6 JIR1/ JIR2

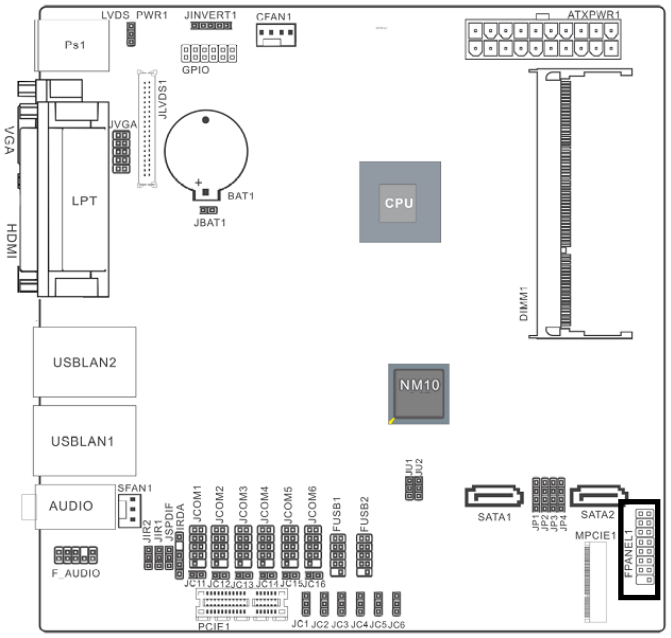


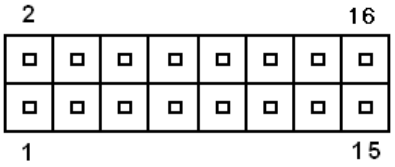
Pin No.	Definition
1-2	COM2
2-3	IR

For COM2, please set up JIR1/ JIR2 as 1-2.

For IR, please set up JIR1/ JIR2 as 2-3.

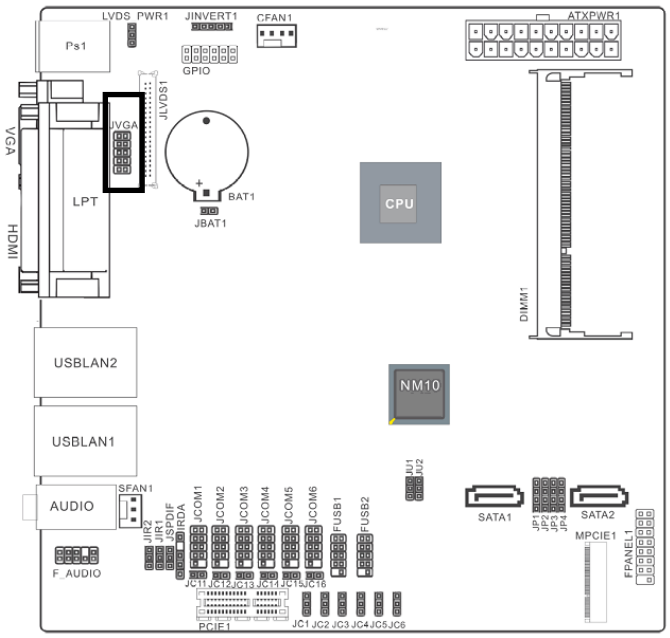
2.3.7 FPANEL1

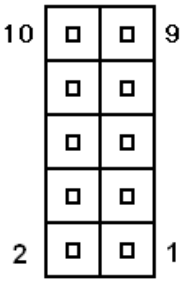




Pin No.	Definition	Pin No.	Definition
1	5VSB	2	+HD_LED
3	+P_LED	4	-HD_LED
5	-P_LED	6	PS_ON
7	+SPEAK	8	-PS_ON
9	NC	10	RESET
11	NC	12	-RESET
13	-SPEAK	14	+SLEEP_LED
15	KEY	16	-SLEEP_LED

2.3.8 JVGA

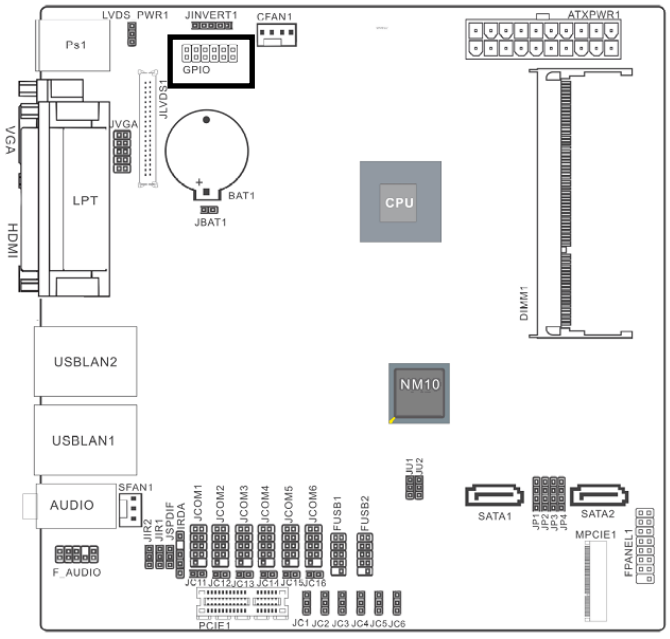


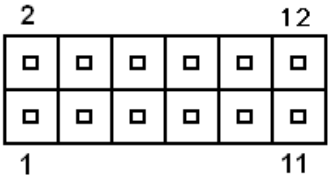


(The I/O VGA DB15 connector & 2 x 5 pin-headers can't use in the same time)

Pin No.	Definition	Pin No.	Definition
1	GND	2	R
3	GND	4	G
5	GND	6	B
7	HSYNC	8	VSYNC
9	DDC_DATA	10	DDC_CLK

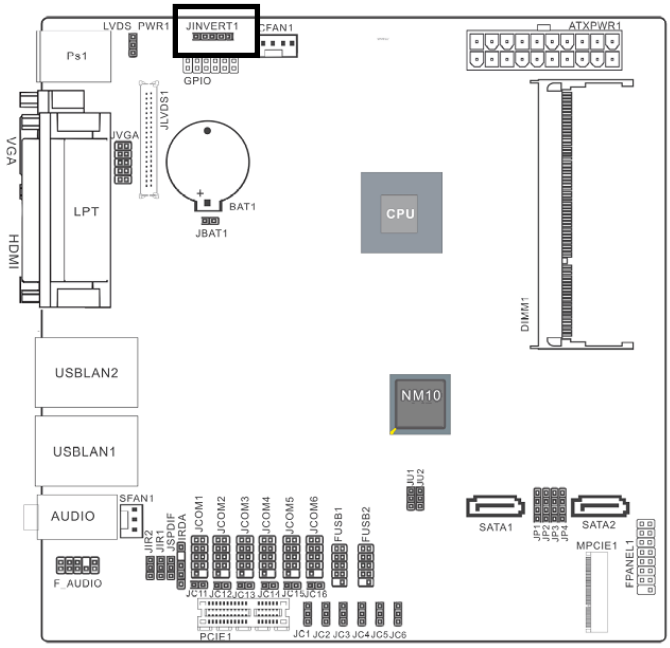
2.3.9 GPIO





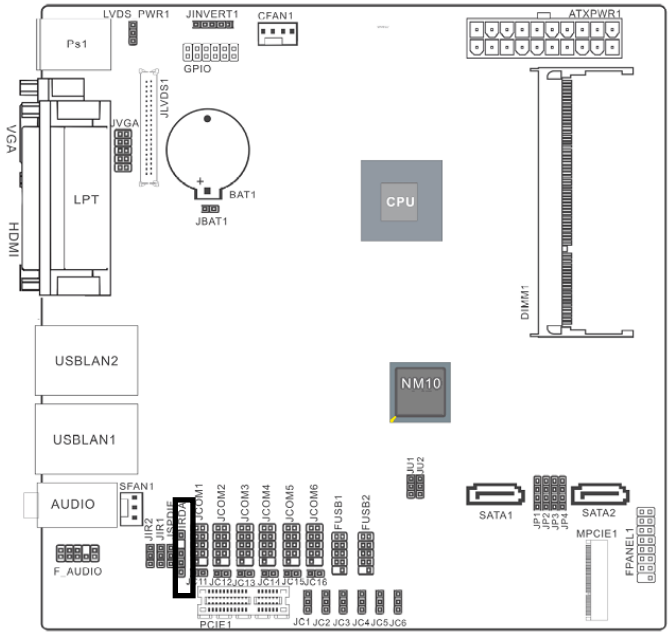
Pin No.	Definition	Pin No.	Definition
1	+5V	2	+12V
3	GPIO	4	GPIO
5	GPIO	6	GPIO
7	GPIO	8	GPIO
9	GPIO	10	GPIO
11	GND	12	GND

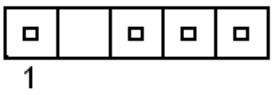
2.3.10 JINVERT1



Pin No.	Definition	Pin No.	Definition
1	12V	2	GND
3	BLEN	4	PWM
5	5V		

2.3.11 IRDA

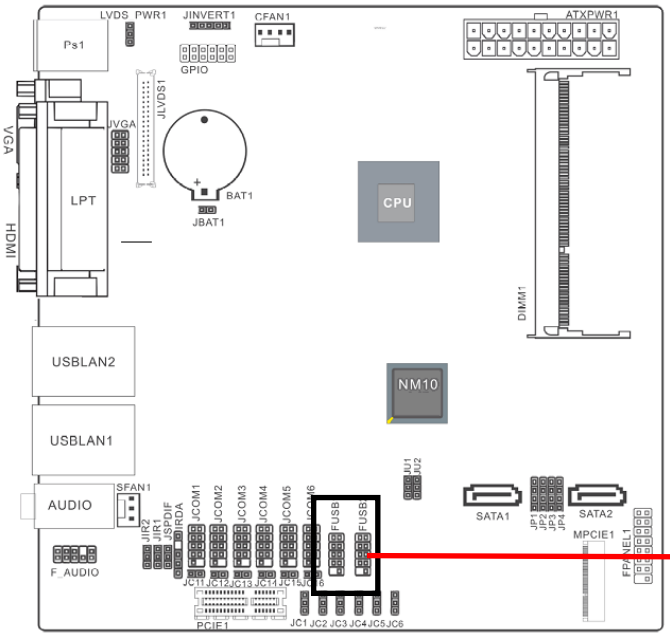


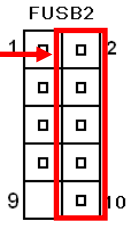


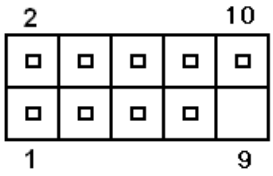
Only for specially used (Can't send data)

Pin No.	Definition	Pin No.	Definition
1	VCC	2	
3	IRRX	4	GND
5	IRTX		

2.3.12 FUSB1/FUSB2





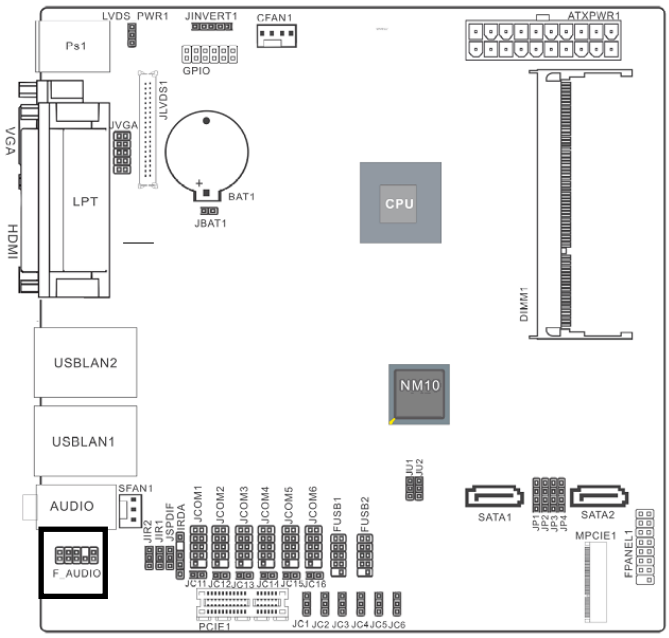


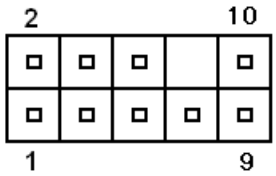
Pin No.	Definition	Pin No.	Definition
1	VCC	2	VCC
3	Data 0-	4	Data 1-
5	Data 0+	6	Data 1+
7	GND	8	GND
9	NC(CUT)	10	GND

When JU1/JU2 jumpers are set to 2-3, FUSB2 (USB7) will be disabled.

(Please refer to P.15 2.3.4 for more information.)

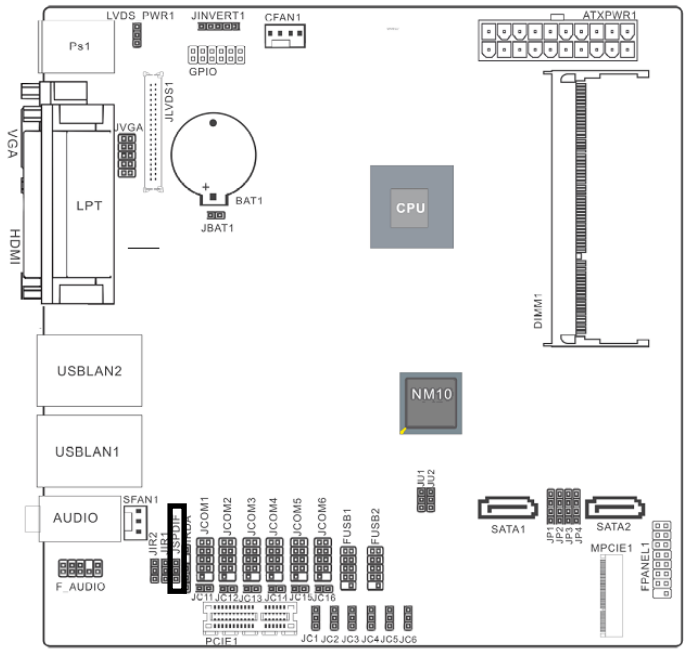
2.3.13 F_AUDIO

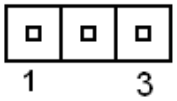




Pin No.	Definition
1	FRONT_MIC
2	GND
3	VREF_OUT
4	5V
5	FRONT_OUT_R
6	AUD_RET_R
7	GND
8	NC(CUT)
9	FRONT_OUT_L
10	AUD_RET_L

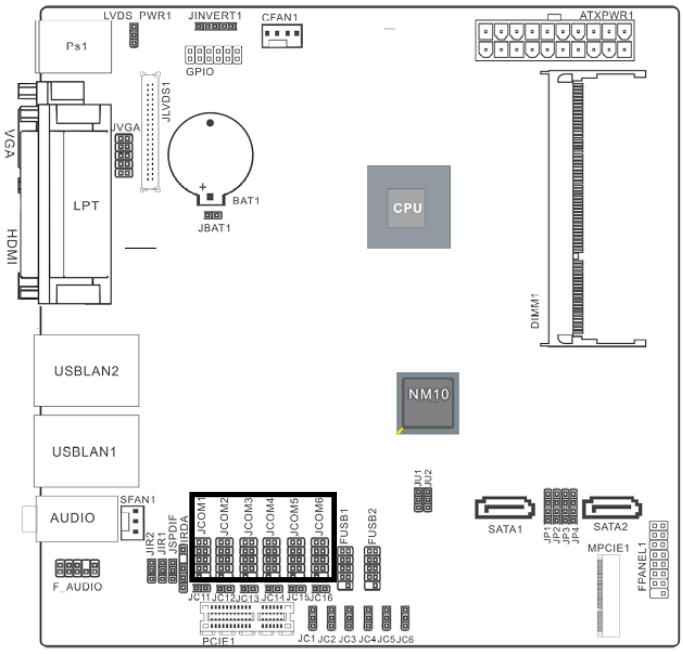
2.3.14 JSPDIF1

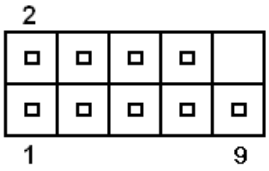




Pin No.	Definition
1	NC
2	GND
3	OUT

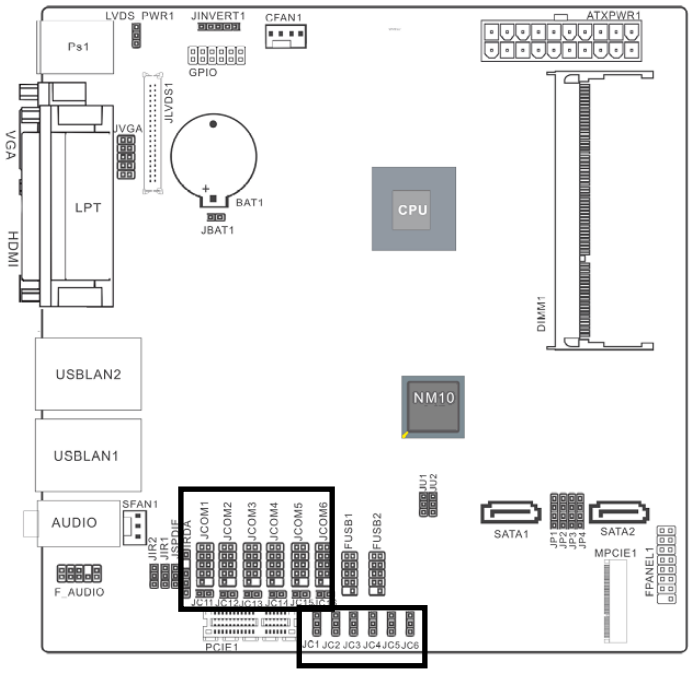
2.3.15 JCOM1-6





Pin No.	Definition	Pin No.	Definition
1	DCD	2	RXD
3	TXD	4	RTD
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC(CUT)

2.3.16 JCOM1-6 (9th Pin definition)



COM1 to COM6 9th Pin definition

Pin No.	Pin	Definition
JC11/12/13	CLOSE	RI
JC14/15/16	OPEN	USE JC1-JC6
JC1/2/3	1-2	+5V
JC4/5/6	2-3	+12V

3.BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> immediately after switching the system on, or
By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press DEL to enter SETUP

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F9 key	Reserved
F10 key	Save and Exit

- **Navigating Through The Menu Bar**

  Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the CMOS settings which resets your system to its defaults.

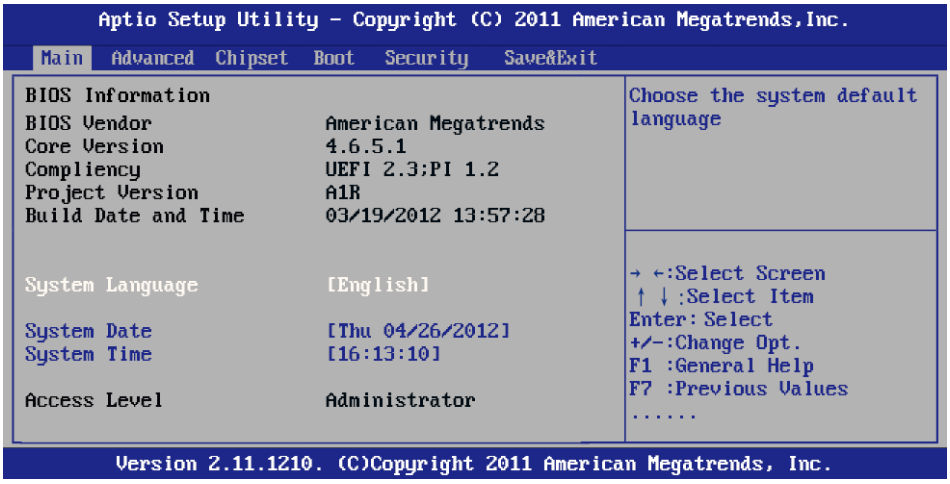
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.



3.6.1.1 System Language

Use this option to select system language

3.6.1.2 System Date

Use the system Date option to set the system date. Manually enter the day, month and year.

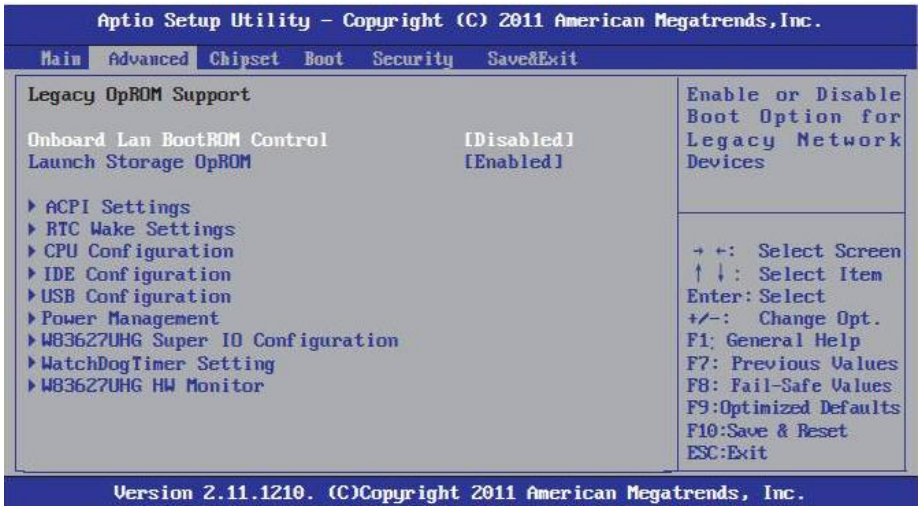
3.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.2 Advanced BIOS settings

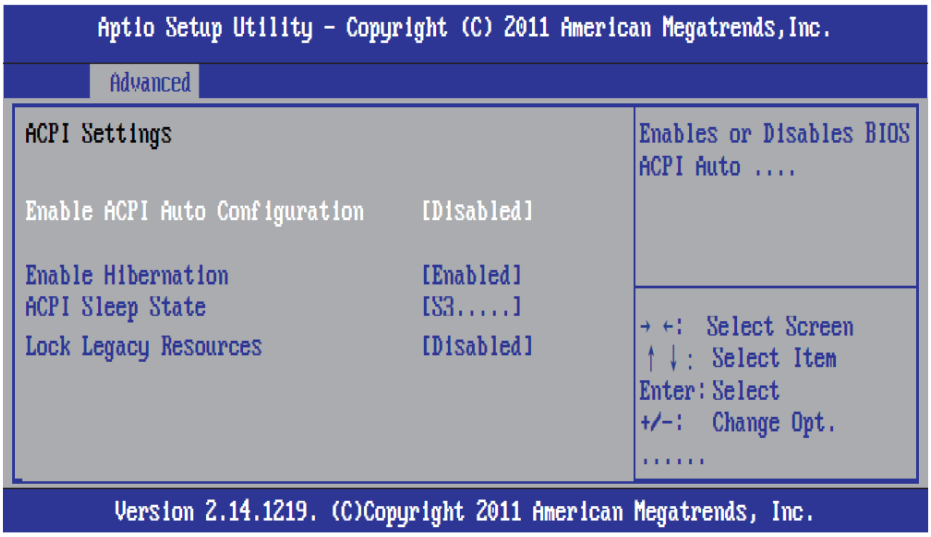
This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.



Item	Options	Description
Onboard Lan BootROM Control	Disabled**[Default]**, Enabled	Enable or Disable Boot Option for Legacy Network Devices.
Launch Storage OpROM	Disabled, Enabled**[Default]**	Enable or disable Boot Option for Legacy Mass storage devices With Option ROM.

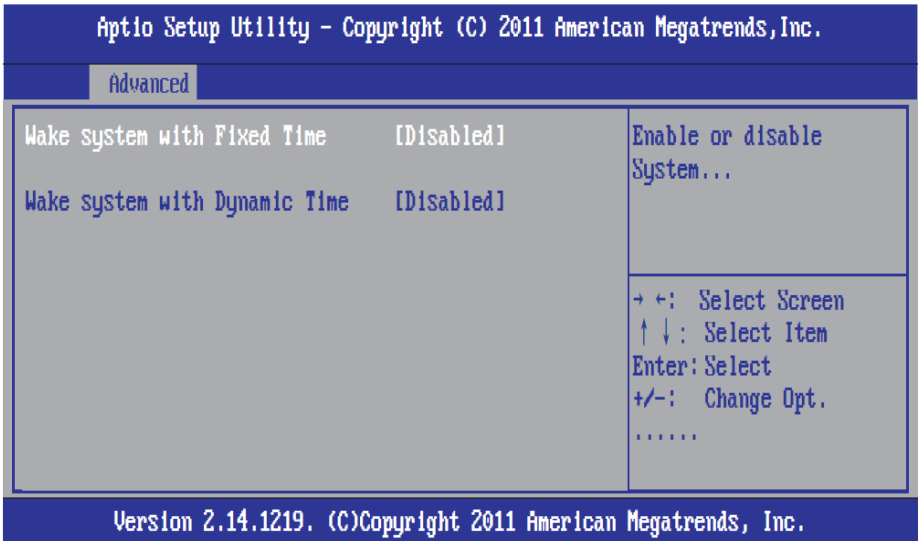
3.6.2.1 ACPI Settings

You can use this item to set up ACPI Configuration.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends,Inc.
Advanced
ACPI Settings
Enable ACPI Auto Configuration [Disabled]
Enable Hibernation [Enabled]
ACPI Sleep State [S3.....]
Lock Legacy Resources [Disabled]
Enables or Disables BIOS ACPI Auto ....
→ ←: Select Screen
↑ ↓: Select Item
Enter: Select
+/-: Change Opt.
.....
Version 2.14.1219. (C)Copyright 2011 American Megatrends, Inc.

Item	Options	Description
Enable ACPI Auto Configuration	Disabled**[Default]**, Enabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Disabled, Enabled**[Default]**	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled S1 (CPU Stop Clock), S3 (Suspend to RAM) **[Default]**	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
Lock Legacy Resources	Disabled**[Default]**, Enabled	Enables or Disables Lock of Legacy Resources.

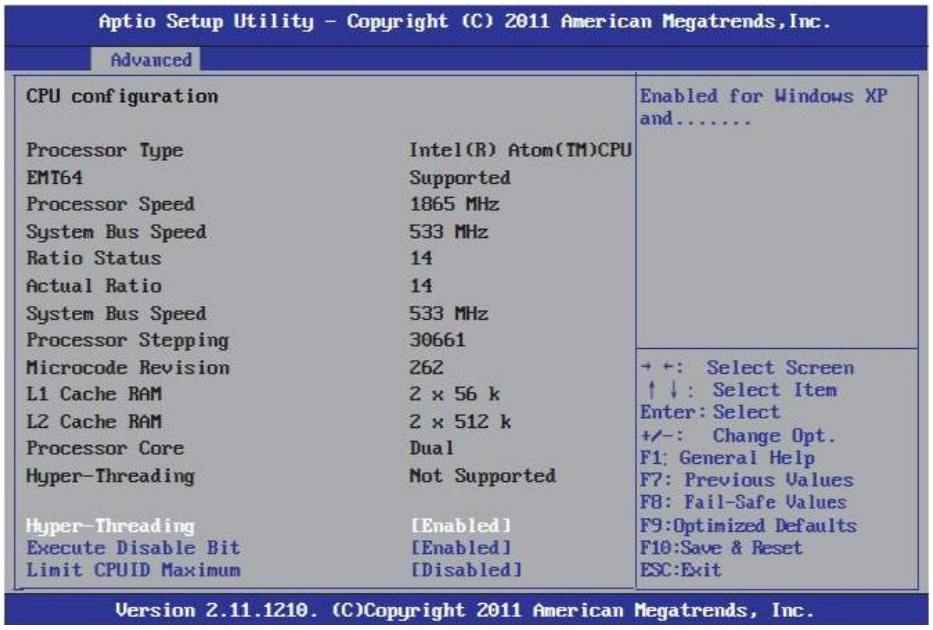
3.6.2.2 RTC Wake Settings


Aptio Setup Utility – Copyright (C) 2011 American Megatrends,Inc.
Advanced
Wake system with Fixed Time [Disabled]
Wake system with Dynamic Time [Disabled]
Enable or disable System...
→ ←: Select Screen
↑ ↓: Select Item
Enter: Select
+/-: Change Opt.
.....
Version 2.14.1219. (C)Copyright 2011 American Megatrends, Inc.

Item	Options	Description
Wake system with Fixed Time	Disabled**[Default]**, Enabled	Enables or Disables wake on alarm event. When enabled, System will wake on the hr::min::sec specified.
Wake system with Dynamic Time	Disabled**[Default]**, Enabled	Enables or Disables wake on alarm event. When enabled, System will wake on the current time + Increase minutes (s)

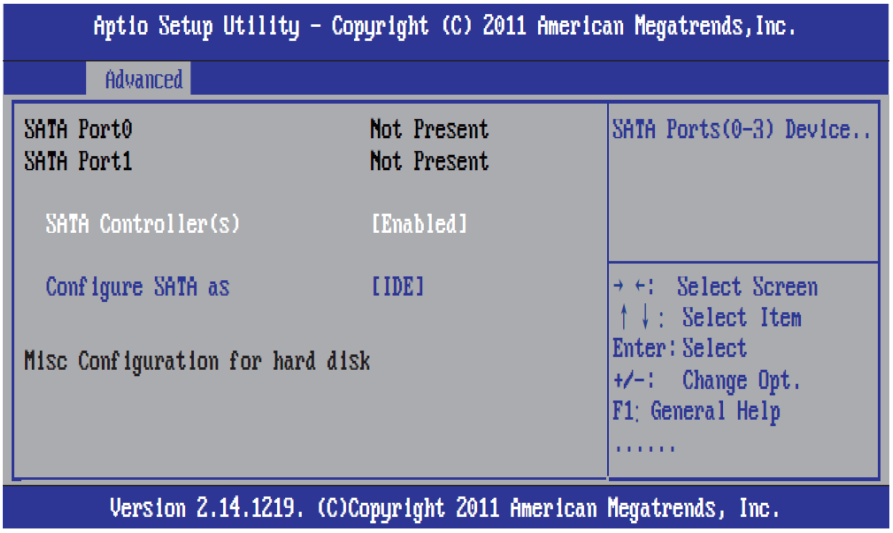
3.6.2.3 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



Item	Options	Description
Hyper-Threading	Disabled, Enabled**[Default]**	Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).
Execute Disable Bit	Disabled, Enabled**[Default]**	XD can prevent certain classed of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2,SuSE Linux 9.2,RedHat Enterprise 3 Update 3.
Limit CPUID Maximum	Disabled**[Default]**, Enabled	Disabled for Windows XP

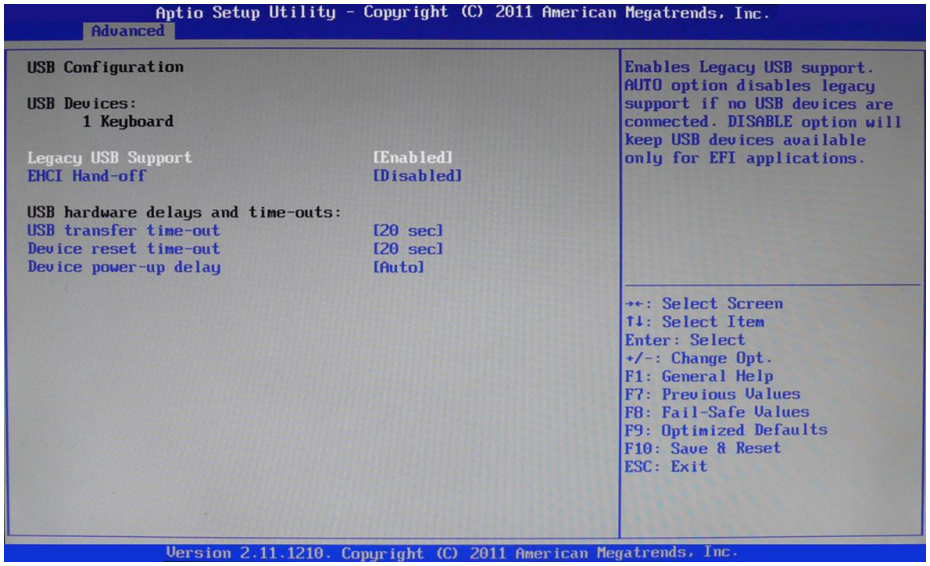
3.6.2.4 IDE Configuration



Item	Options	Description
SATA Controller(s)	Enabled**[Default]** Disabled	SATA Ports (0-3) Device Names if Present and Enabled.
Configure SATA as	IDE**[Default]** AHCI	Select a configuration for SATA Controller

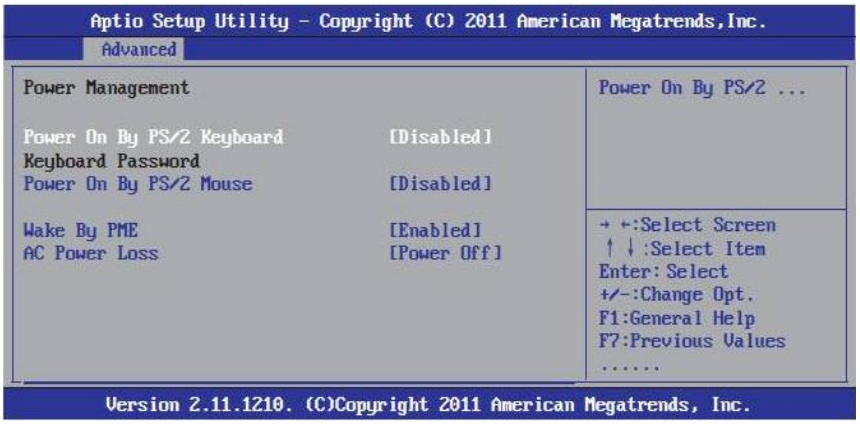
3.6.2.5 USB Configuration

The USB configuration menu is used to read USB configuration information and configure USB.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices:
1 Keyboard
Legacy USB Support [Enabled]
EHCI Hand-off [Disabled]
USB hardware delays and time-outs:
USB transfer time-out [20 sec]
Device reset time-out [20 sec]
Device power-up delay [Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
F8: Fail-Safe Values
F9: Optimized Defaults
F10: Save & Reset
ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

Item	Options	Description
Legacy USB Support	Enabled**[Default]** Disabled Auto	Enables Legacy USB support. AUTO disables legacy support if no USB devices are connected. DISABLE will keep USB devices available only for EFI applications.
ECHI Hand-Off	Enabled Disabled**[Default]**	This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
USB transfer time-out	1sec / 5sec 10sec / 20sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10sec / 20sec**[Default]** 30sec / 40sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto**[Default]** Manual	Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

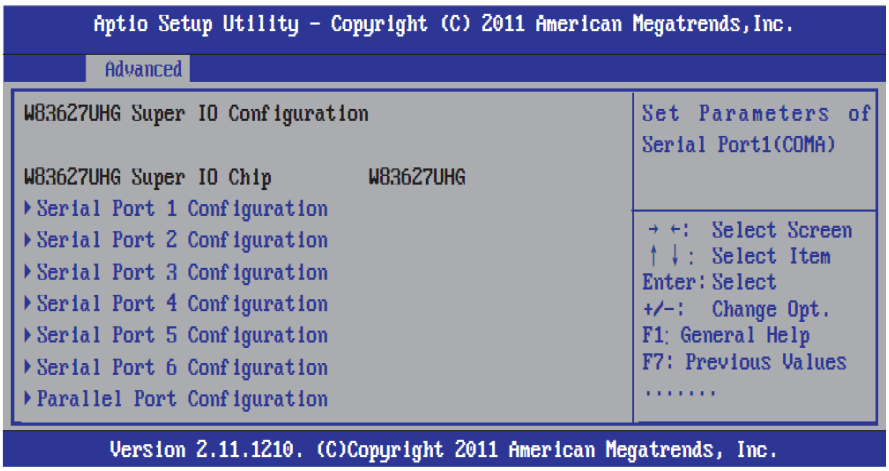
3.6.2.6 Power Management



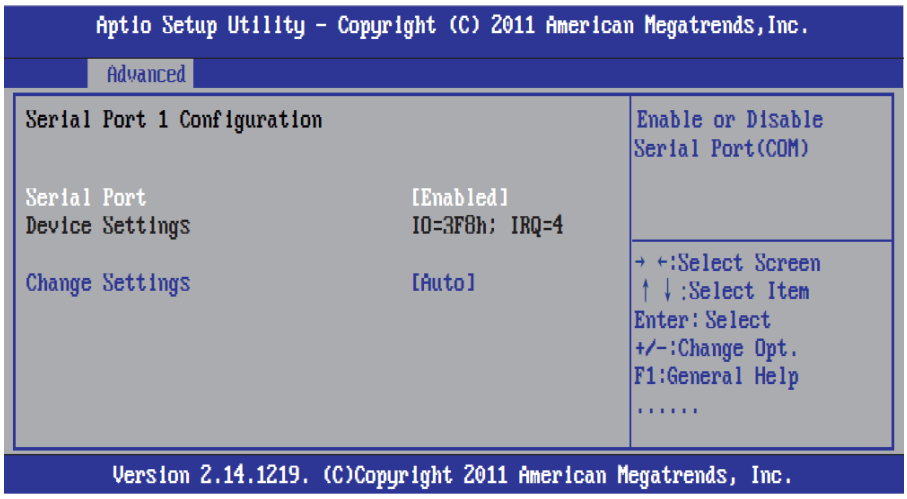
Item	Options	Description
Power On By PS/2 Keyboard	Disabled**[Default]** AnyKey Passwod	Power On By PS/2 Keyboard
Power on By PS/2 Mouse	Disabled**[Default]** Enabled	Power on By PS/2 Mouse
Wake By PME	Disabled Enabled**[Default]**	Wake By PME
AC Power Loss	Power Off**[Default]** Power On Last State	AC Power Loss

3.6.2.7 W83627UHG Super IO Configuration

You can use this item to set up or change the Super IO configuration for FDD controllers, parallel ports and serial ports.

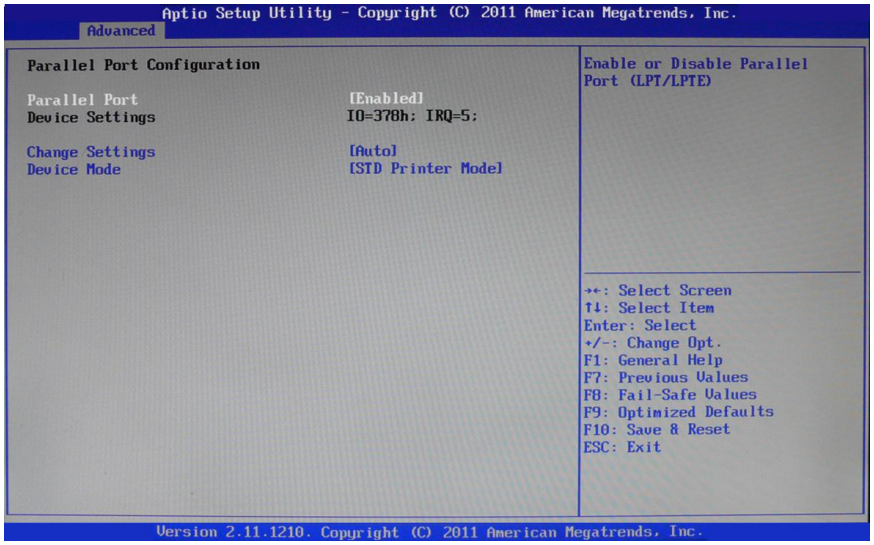

Aptio Setup Utility – Copyright (C) 2011 American Megatrends,Inc.
Advanced
W83627UHG Super IO Configuration
W83627UHG Super IO Chip W83627UHG
Serial Port 1 Configuration
Serial Port 2 Configuration
Serial Port 3 Configuration
Serial Port 4 Configuration
Serial Port 5 Configuration
Serial Port 6 Configuration
Parallel Port Configuration
Set Parameters of Serial Port1(COMA)
→ ←: Select Screen
↑ ↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F7: Previous Values
Version 2.11.1210. (C)Copyright 2011 American Megatrends, Inc.

3.6.2.7.1 Serial Port 1/2/3/4/5/6 Configuration



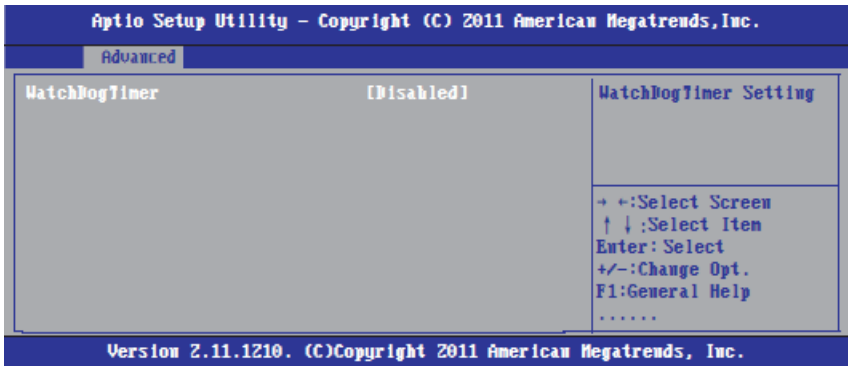
Item	Option	Description
Serial Port	Enabled**[Default]**, Disabled	Enable or Disable Serial Port (COM)
Change Settings	Auto**[Default]** IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,10,11,12 IO=3E8h; IRQ=3,4,5,6,7,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select an optimal setting for Super IO device.

3.6.2.7.2 Parallel Port Configuration



Item	Options	Description
Parallel Port	Enabled**[Default]**, Disabled	Enable or Disable Parallel Port (LPT/LPTE).
Change Settings	Auto**[Default]** IO=378h; IRQ=5; IO=378h; IRQ=5,6,7,10,11,12 IO=278h; IRQ=5,6,7,10,11,12 IO=3BCh; IRQ=5,6,7,10,11,12	Select an optimal setting for Super IO device.
Device Mode	STD Printer Mode**[Default]** SPP Mode EPP-1.9 and SPP Mode EPP-1.7 and SPP Mode ECP Mode ECP and EPP 1.9 Mode ECP and EPP 1.7 Mode	Change the Printer Port mode.

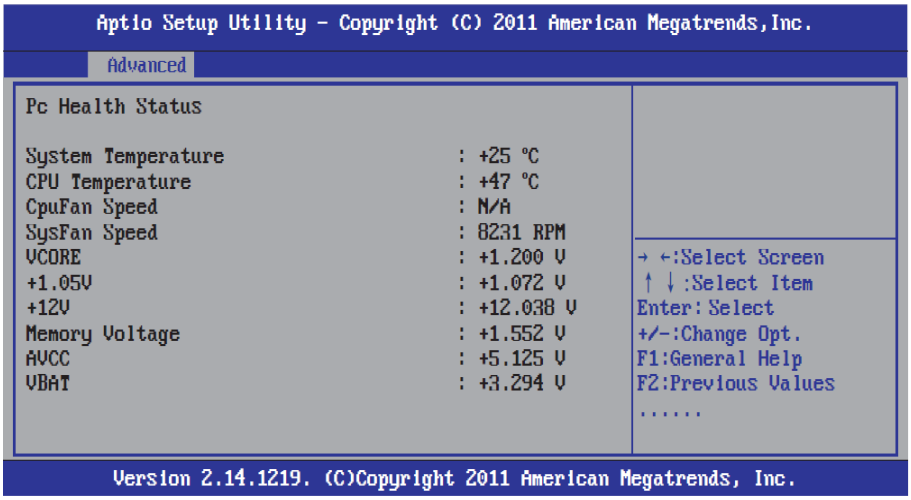
3.6.2.8 WatchDogTimer Setting



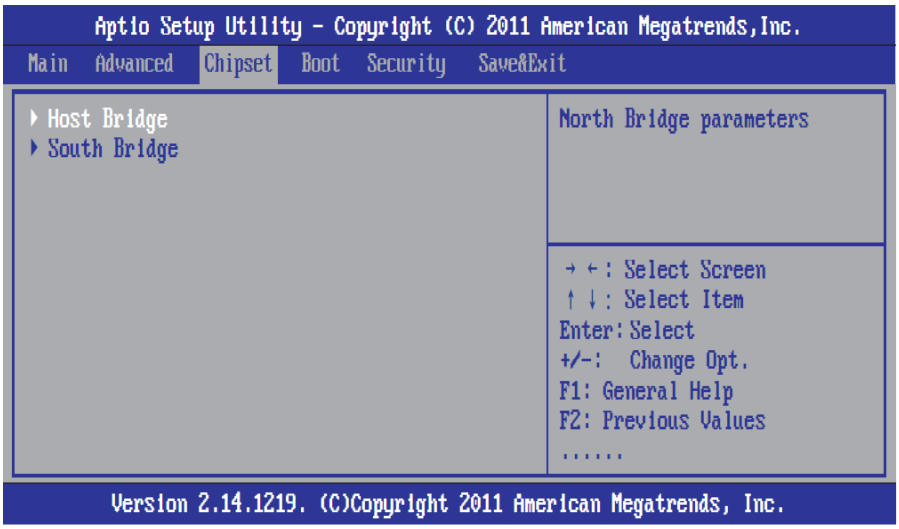
Item	Options	Description
WatchDogTimer	Enabled, Disabled**[Default]**	WatchDogTimer Setting

3.6.2.9 W83627UHG HW Monitor

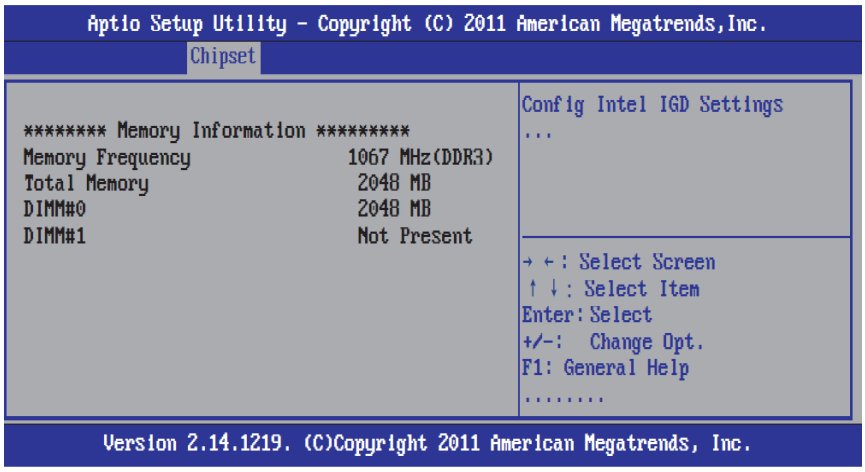
The H/W Monitor shows the operating temperature, fan speeds and system voltages.



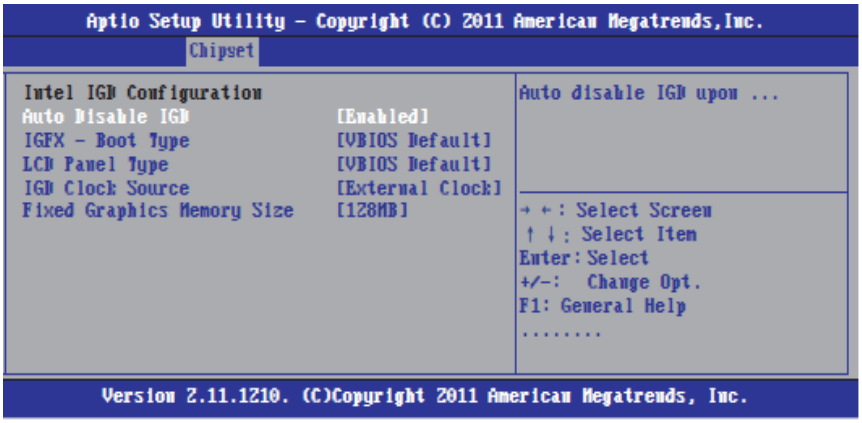
3.6.3 Chipset



3.6.3.1 Host bridge

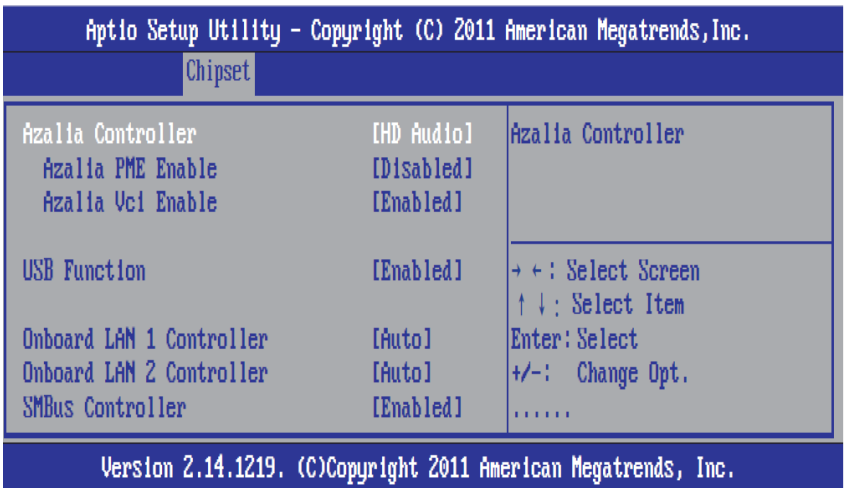


3.6.3.1.1 Intel IGD Configuration


Aptio Setup Utility – Copyright (C) 2011 American Megatrends,Inc.
Chipset
Intel IGD Configuration
Auto Disable IGD [Enabled]
IGFX – Boot Type [VBIOS Default]
LCD Panel Type [VBIOS Default]
IGD Clock Source [External Clock]
Fixed Graphics Memory Size [128MB]
Auto disable IGD upon ...
→ ←: Select Screen
↑ ↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
.....
Version 2.11.1210. (C)Copyright 2011 American Megatrends, Inc.

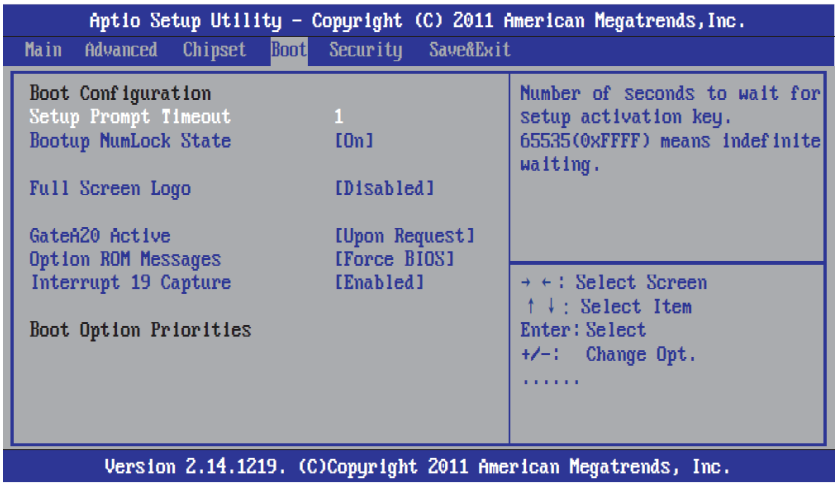
Item	Option	Description
Auto Disable IGD	Disabled Enabled**[Default]**	Auto disable IGD upon external GFX detected.
IGFX – Boot Type	VBIOS Default**[Default]** CRT LFP EFP CRT+LFP CRT+EFP LFP+EFP	Select the Video Device which will be activated during POST. This has no effect if external graphics present.
LCD Panel Type	VBIOS Default**[Default]** 640x480 LVDS 800x600 LVDS 1024x768 LVDS 1280x1024 LVDS 1366x768 LVDS 1024x600 LVDS 1280x800 LVDS	Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.
IGD Clock Source	External Clock**[Default]** Internal Clock	IGD clock selection.
Fixed Graphics Memory Size	128 MB**[Default]** 256 MB	Configure Fixed Graphics Memory Size.

3.6.3.2 South bridge



Item	Option	Description
Azalia Controller	Disabled HD Audio**[Default]**	Azalia controller
Azalia PME Enable	Enabled, Disabled**[Default]**	Enable or Disable Power Management capability of Audio Controller.
Azalia Vci Enable	Enabled**[Default]**, Disabled	Azalia supports 1 extended VC, which, when enabled, overrides ICH VCp settings.
USB Function	Enabled**[Default]** Disabled	Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller.
Onboard LAN 1/2 Controller	Auto**[Default]** Enabled, Disabled	Enable/Disable Onboard Lan Controller.
SMBus Controller	Enabled**[Default]**, Disabled	Enable or Disable OnChip SMBus Controller.

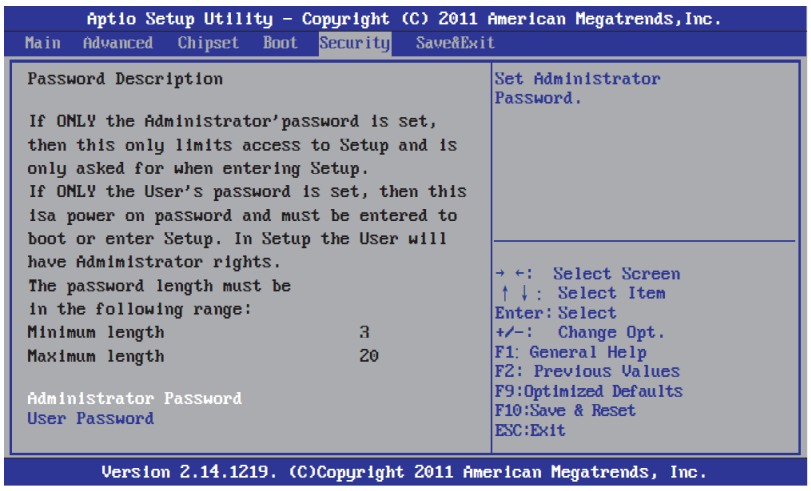
3.6.4 Boot settings


Aptio Setup Utility – Copyright (C) 2011 American Megatrends,Inc.
Main Advanced Chipset Boot Security Save&Exit
Boot Configuration
Setup Prompt Timeout 1
Bootup NumLock State [On]
Full Screen Logo [Disabled]
GateA20 Active [Upon Request]
Option ROM Messages [Force BIOS]
Interrupt 19 Capture [Enabled]
Boot Option Priorities
Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
→ ←: Select Screen
↑ ↓: Select Item
Enter: Select
+/-: Change Opt.
.....
Version 2.14.1219. (C)Copyright 2011 American Megatrends, Inc.

Item	Option	Description
Setup Prompt Timeout	1~65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On**[Default]** Off	Select the keyboard NumLock state
Full Screen Logo	Enabled Disabled**[Default]**	Enables or Disables Quiet Boot Option
GateA20 Active	Upon Request**[Default]** Always	UPON REQUEST –GA20 can be disabled using BIOS services. ALWAYS- do not allow disabling GA20; this option is useful when any RT code is executed above 1MB
Option ROM Messages	Force BIOS**[Default]** Keep current	Set display mode for Option ROM
Interrupt 19 Capture	Enabled**[Default]** Disabled	Enabled: Allows Option ROMs to trap Int 19
Boot Option Priorities	Sets the system boot order	

3.6.5 Security

Use the Security menu to set system and user password.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends,Inc.
Main Advanced Chipset Boot Security Save&Exit
Password Description
If ONLY the Administrator'password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this isa power on password and must be entered to boot or enter Setup. In Setup the User will have Admimistrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
User Password
Set Administrator Password.
→ ←: Select Screen
↑ ↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9:Optimized Defaults
F10:Save & Reset
ESC:Exit
Version 2.14.1219. (C)Copyright 2011 American Megatrends, Inc.

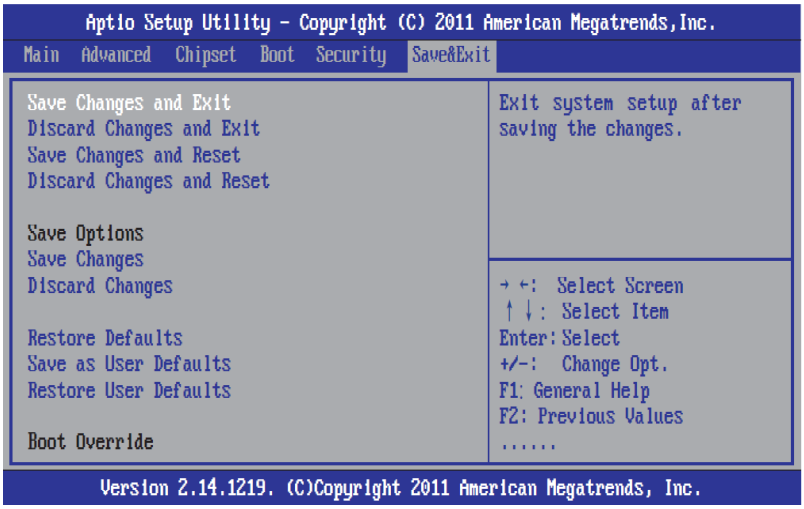
3.6.5.1 Administrator Password

This setting specifies a password that must be entered to access the BIOS Setup Utility. If only the Administrator's password is set, then this only limits access to the BIOS setup program and is only asked for when entering the BIOS setup program. By default, no password is specified.

3.6.5.2 User Password

This setting specifies a password that must be entered to access the BIOS Setup Utility or to boot the system. If only the User's password is set, then this is a power on password and must be entered to boot or enter the BIOS setup program. In the BIOS setup program, the User will have Administrator rights. By default, no password is specified.

3.6.6 Save & Exit



3.6.6.1 Save Changes and Exit

Use the save changes and reset option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

3.6.6.2 Discard Changes and Exit

Use the Discard changes and Exit option to exit the system without saving the changes made to the BIOS configuration setup program.

3.6.6.3 Save Changes and Reset

Any changes made to BIOS settings are stored in NVRAM. The setup program then exits and reboots the controller.

3.6.6.4 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.5 Save Changes

Changes made to BIOS settings during this session are committed to NVRAM. The setup program remains active, allowing further changes.

3.6.6.6 Discard Changes

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The BIOS setup continues to be active.

3.6.6.7 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.6.8 Save as user defaults

This option saves a copy of the current BIOS settings as the User Defaults. This option is useful for preserving custom BIOS setup configurations.

3.6.6.9 Restore as user defaults

This option restores all BIOS settings to the user defaults. This option is useful for restoring previously preserved custom BIOS setup configurations.

3.6.6.10 Boot override

This option lists all possible bootable devices and allows the user to override the **Boot Option Priorities** list for the current boot. If no changes have been made to the BIOS setup options, the system will continue booting to the selected device without first rebooting. If BIOS setup options have been changed and saved, a reboot will be required and the boot override selection will not be valid.

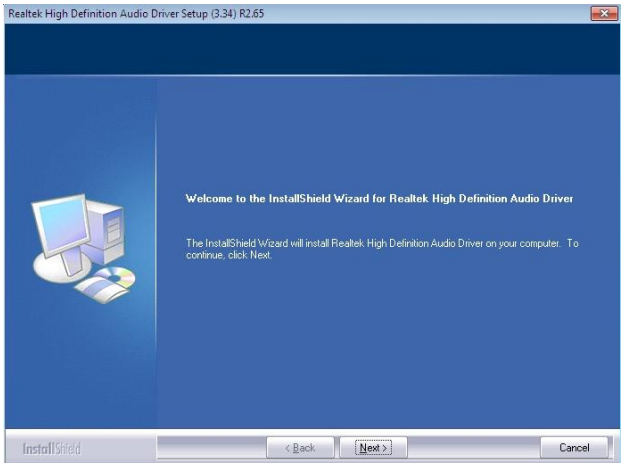
4. Drivers Installation

Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

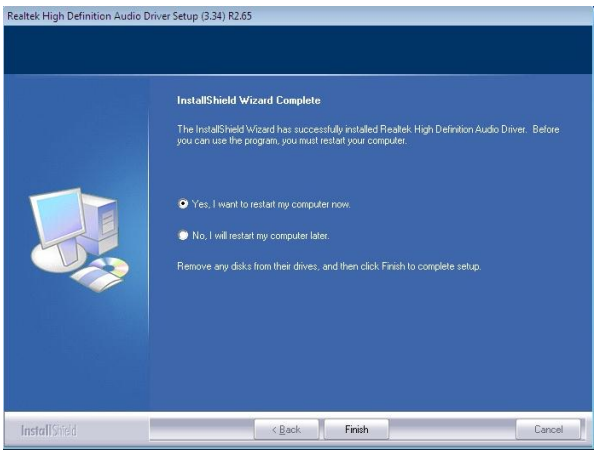
4.1 Install Audio Driver (For Realtek ALC661 HD Audio)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\ Driver_Audio**

Note: The installation procedures and screen shots in this section are based on Windows 7 operation system. If the warning message appears while the installation process, click Continue to go on.


Realtek High Definition Audio Driver Setup (3.34) R2.65
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step1. Click **Next** to Install..


Realtek High Definition Audio Driver Setup (3.34) R2.65
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Step 2. Select **Finish** to complete installation.

4.2 Install Chipset Driver (For Intergated Cedar Trail)

Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

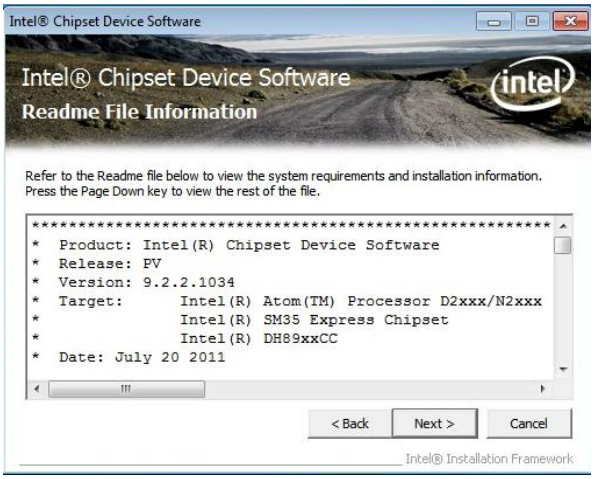
Step 1. Locate 「\Driver_Chipset\Inf」.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Step 2. Select **Next** to start setup.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Step 3. Select **Yes** to the next step.


Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
* Product: Intel(R) Chipset Device Software
* Release: PV
* Version: 9.2.2.1034
* Target: Intel(R) Atom(TM) Processor D2xxx/N2xxx
* Intel(R) SM35 Express Chipset
* Intel(R) DH89xxCC
* Date: July 20 2011
< Back
Next >
Cancel
Intel® Installation Framework

Step 4. Select **Next** to continue installation.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
The setup program successfully installed the Intel® Chipset Device Software onto this computer. Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Step 5. Select **Finish** to complete Installation.

4.3 Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, click on "start" icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

Note: The installation procedures and screen shots in this section are based on Windows 7 operating system.

Step 1. Locate 「\ VGA\Graphics」.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Welcome to the Setup Program
This setup program will install the following components:
- Intel® Graphics Media Accelerator Driver
- Intel® High Definition Audio HDMI Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
Automatically run WinSAT and enable the Windows Aero desktop theme (if supported).
< Back
Next >
Cancel
Intel® Installation Framework

Step 2. Select **Next** to start setup.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load software from this site or any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
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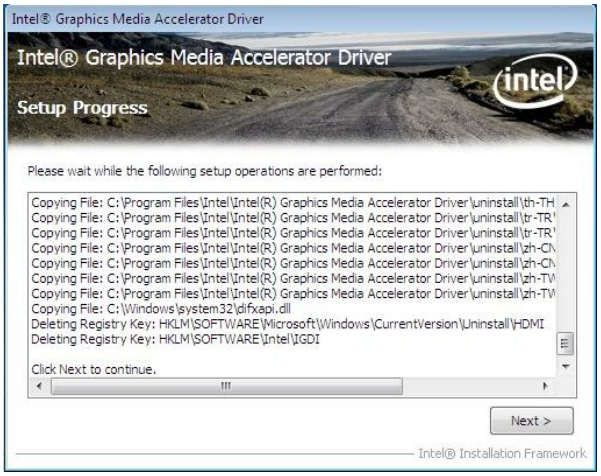
< Back
Yes
No
Intel® Installation Framework

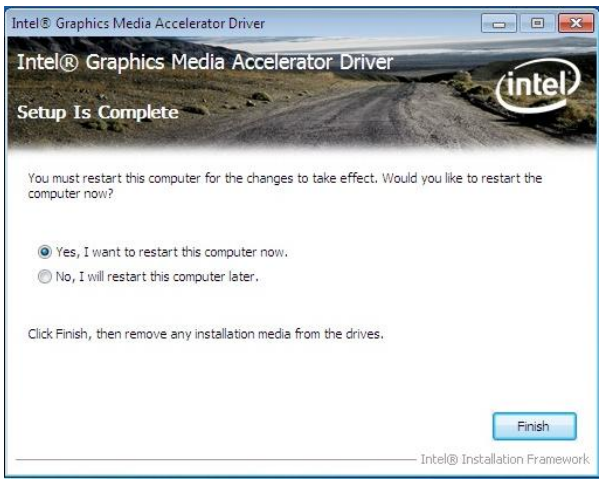
Step 3. Select **Yes** to the next step.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Production Version Release
Microsoft Windows* 7
Driver Revision: 8.0.0.6.1082
Display Audio Driver: 6.14.0.3081
May 25, 2012
* NOTE: This document refers to systems containing the following Intel processors/chipsets:
< Back
Next >
Cancel
Intel® Installation Framework

Step 4. Select **Next** to continue installation.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Progress
Please wait while the following setup operations are performed:
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\th-TH
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Windows\system32\difxapi.dll
Deleting Registry Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI
Deleting Registry Key: HKLM\SOFTWARE\Intel\IGDI
Click Next to continue.
Next >
Intel® Installation Framework

Step 5. Select **Next** to continue installation.

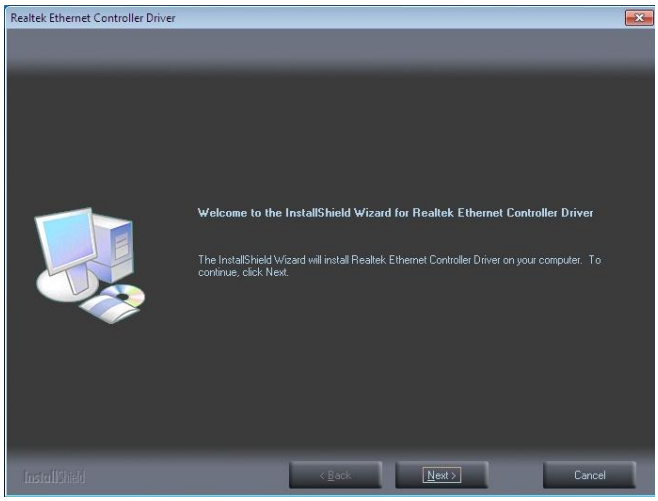

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

Step 6. Select **Finish** to complete installation

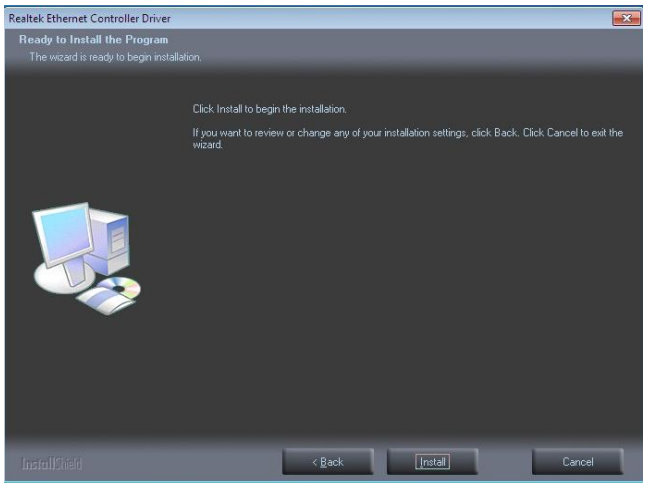
4.4 Install LAN Driver (For Realtek 8111E Gigabit Ethernet)

Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to **\Driver_Network\LAN**.

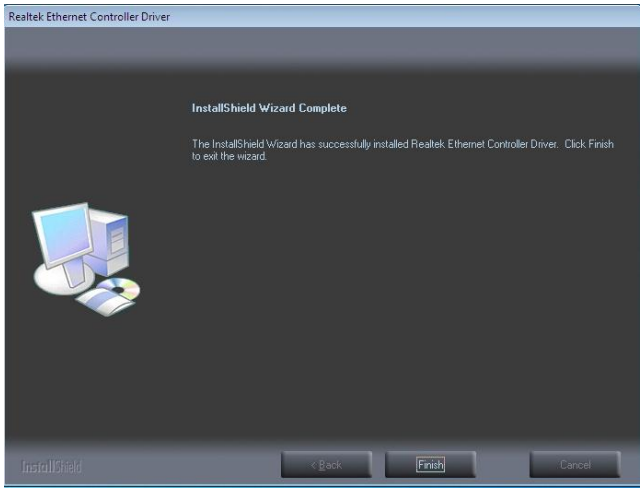
Note: The installation procedures and screen shots in this section are based on Windows 7 operation system.


Realtek Ethernet Controller Driver
Welcome to the InstallShield Wizard for Realtek Ethernet Controller Driver
The InstallShield Wizard will install Realtek Ethernet Controller Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step 1. Click **Next** to Install..

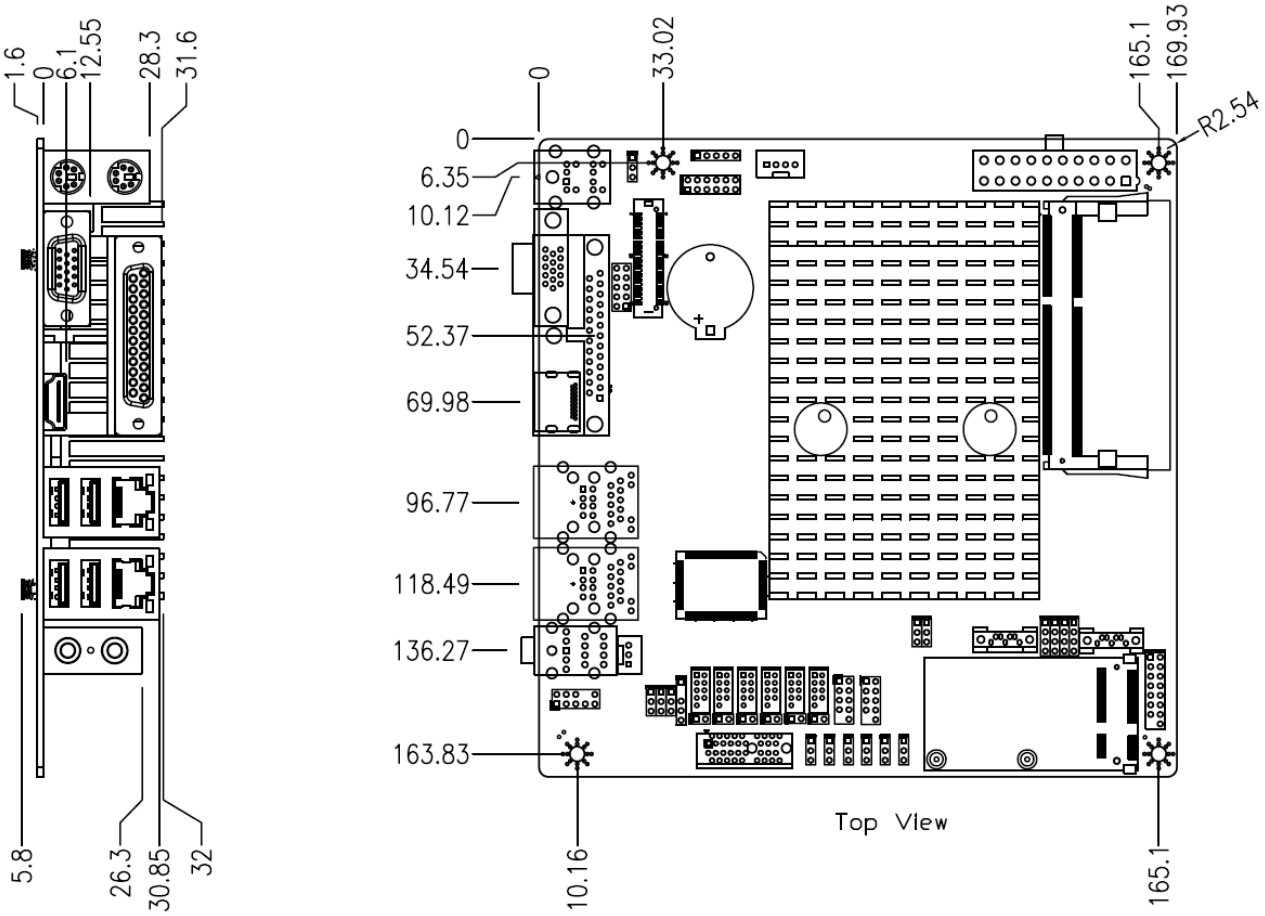

Realtek Ethernet Controller Driver
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Step 2. Click **Install** to begin the installation.

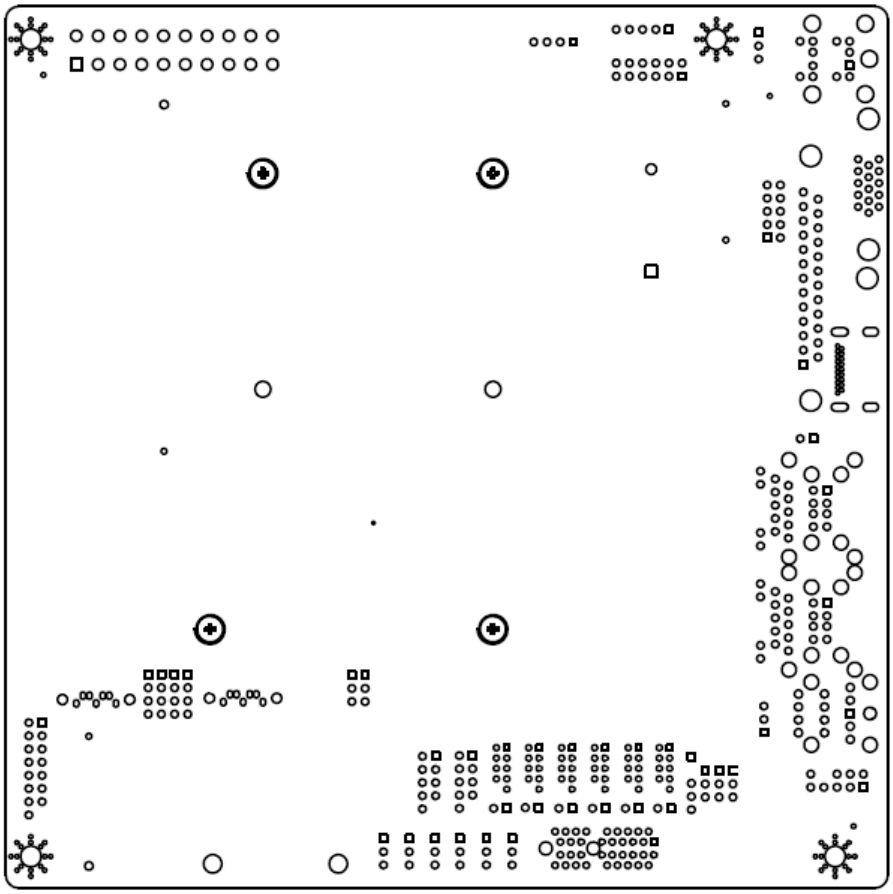

Realtek Ethernet Controller Driver
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek Ethernet Controller Driver. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

Step 3. Click **Finish** to complete setup.

5. Mechanical Drawing


1.6
0
6.1
12.55
28.3
31.6
5.8
26.3
30.85
32
0
33.02
165.1
169.93
R2.54
0
6.35
10.12
34.54
52.37
69.98
96.77
118.49
136.27
163.83
10.16
165.1
Top View

Unit: mm



Bottom View

Unit: mm

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